

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
26 May 2005 (26.05.2005)

PCT

(10) International Publication Number
WO 2005/046829 A3

- (51) International Patent Classification⁷: **C07D 307/77**, 307/93, 307/94
- (21) International Application Number:
PCT/US2004/037412
- (22) International Filing Date:
9 November 2004 (09.11.2004)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
60/519,840 12 November 2003 (12.11.2003) US
- (71) Applicant (for all designated States except US): **THE TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK** [US/US]; 110 Low Memorial Library, West 116th & Broadway, New York, NY 10027 (US).
- (72) Inventors; and
- (75) Inventors/Applicants (for US only): **NAKANISHI, Koji** [JP/US]; 560 Riverside Drive, New York, NY 10027 (US). **JARACZ, Stanislaw** [CZ/US]; 488 Bicycle Path, Port Jefferson Station, NY 11776 (US). **MALIK, Shahid** [PK/CA]; 961 Wonderland Road, London, N6K 2X9 (CA). **ISHII, Hideki** [JP/US]; 610 West 116th Street, Apt. 104, New York, NY 10027 (US). **DZYUBA, Sergel, V.** [UA/US]; 400 West 119th Street, Apt. 12H, New York, NY 10027 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).
- Published:
— with international search report
— with amended claims
- (88) Date of publication of the international search report:
10 November 2005
- Date of publication of the amended claims: 22 December 2005
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: SEPARATION OF GINKGOLIDES AND BILOBALIDE FROM G. BILOBA

(57) Abstract: The subject invention provides a method for separating a terpene trilactone from Ginkgo biloba plant material or from an extract of Ginkgo biloba comprising a mixture of terpene trilactones, the process comprising the steps of: a) subjecting the Ginkgo biloba plant material or the extract to column chromatography with an appropriate solvent system to produce at least a first fraction containing the terpene trilactone bilobalide, a second fraction eluted after the first fraction containing the terpene trilactones GA and GB, and a third fraction eluted after the second fraction containing at least a preponderance of the terpene trilactones GC and GJ; and b) alkylating the terpene trilactone GB of the second fraction so as to produce a first mixture including terpene trilactone GA and alkylated terpene trilactone GB; or alkylating the terpene trilactone GC of the third fraction so as to produce a second mixture including terpene trilactone GJ and alkylated terpene trilactone GC, so as to thereby isolate a terpene trilactone.

WO 2005/046829 A3